

Ecological Effects of Oil Spill on Water and Sediment from Two Riverine Communities in Warri

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Abstract : The ecological effects of oil spill in the environment were studied in Warri riverine areas of Ubeji and Jeddo, Delta State. In the two communities, water and sediment samples were analysed for organics (polyaromatic hydrocarbon; total petroleum hydrocarbon (TPH)) and heavy metals (lead, copper, zinc, iron and chromium). The American Public Health Association (APHA) and the American Society for Testing and Materials (ASTM) methods were employed for the laboratory test. The results indicated that after a long period of oil spill (above one year), there were still significant concentrations ($p < 0.05$) of organics indicating hydrocarbon pollution. Mean concentrations recorded for TPH in Ubeji and Jeddo waters were 23.60 ± 1.18 mg/L and 29.96 ± 0.14 mg/L respectively while total PAHs was 0.009 ± 0.002 mg/L and 0.008 ± 0.001 mg/L. Mean concentrations of TPH in the sediment was 48.83 ± 1.49 ppm and 1093 ± 74 ppm in the above order while total PAHs was 0.012 ± 0.002 ppm and 0.026 ± 0.004 ppm. Low concentrations were recorded for most of the heavy metals in the water and sediment. The observed concentrations of hydrocarbons in the study areas should provide the impetus for regulatory surveillance of oil discharged intentionally/unintentionally into the Warri riverine waters and sediment since hydrocarbon released into the environment sorb to the sediment particles where they cause harm to organisms in the sediment and overlying waters.

Keywords : crude oil, PAHs, TPH, oil spillage, water, sediment

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